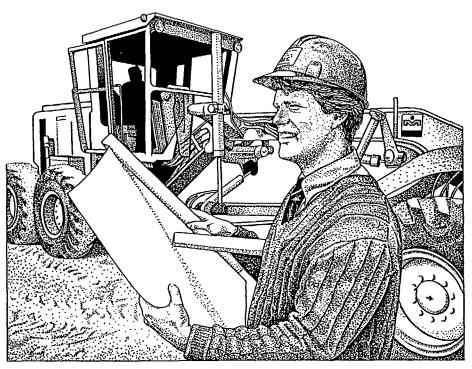


Chapter Five AIRPORT PLANS



Chapter Five AIRPORT PLANS

A set of plans, referred to as Airport Layout Plans, has been prepared to graphically depict the recommendations for airfield layouts, disposition of obstructions and future use of land in the vicinity of the airport. This set includes the following.

- ♦ Airport Layout Plan
- ♦ Terminal Area Plan
- ♦ Part 77 Airspace Plan
- ♦ Approach Zone Plan
- ♦ Runway Protection Zones Plan
- ♦ Airport Land Use/Noise Plan
- ♦ Airport Property Map

DESIGN STANDARDS

The design standards applied to the development of Cottonwood Municipal Airport are prescribed in FAA Advisory Circular 150/5300-13, Airport Design. The design standards are based upon several

factors which includes the approach speed, the operating weights and the wingspan of the aircraft.

Based on forecasts of aviation demands, Cottonwood Municipal Airport would be expected to serve aircraft in Approach Category B (approach speeds between 91 and 120 nautical miles per hour). majority of the aircraft anticipated to operate at the airport would be in Airplane Design Group II (ADG II), aircraft with wingspans less than 79 feet in length. The runway and other airside facilities should be designed to accommodate aircraft in Approach Category B and ADG II. The design load bearing strength of the runway, taxiway and taxilanes should be designed to support aircraft with weights of 12,500 pounds or less single wheel loading (SWL). The design standards used in planning the facilities and airport layout are listed in Table 5A.

TABLE 5A
Airport Design Standards
Cottonwood Municipal Airport

<u>Descriptor</u>	Existing	<u>Ultimate</u>
Runway Length (ft)	4,250	4,250
Runway Width (ft)	75	<i>7</i> 5
Runway Strength (lbs)	30,000 SWL	12,500 SWL
Runway Safety Area Length (ft)	300	300
Runway Safety Area Width (ft)	150	150
Runway 14 RPZ	Visual	Non-precision
Runway 32 RPZ	Visual	Non-precision
Parallel Taxiway Length (ft)	3,650	4,250
Parallel Taxiway Width (ft)	40	35
Parallel Taxiway Strength (lbs)	30,000 SWL	12,500 SWL
Runway Centerline to:		
Parallel Taxiway (ft)	150	240
Aircraft Parking (ft)	250	250
Building Restriction Line (ft)	3 <i>7</i> 5	425 ⁽¹⁾
Taxiway Centerline to:		
Parallel Taxilane (ft)	65	105
Fixed or Movable Object (ft)	44.5	65.5
Taxilane Centerline to:		-
Parallel Taxilane (ft)	64	97
Fixed or Movable Object (ft)	39.5	57.5

Notes:

RPZ - Runway Protection Zone SWL - Single Wheel Loading

N/A - Not Applicable

⁽¹⁾ - The Building Restriction Line (BRL) will vary depending on runway and terrain elevation. This table assumes the runway and terrain elevations are the same. This distance will provide adequate imaginary surface clearance for a 35 foot building. The BRL may be adjusted for buildings/objects of lesser height in relationship to the runway elevation at that location.

Source:

FAA AC 150/5300-13

AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP), Sheet Novingraphically presents the existing and planned airport layout and depicts the recommended improvements needed to meet forecast aviation demand. Detailed airport and runway data are provided on the ALP to facilitate the interpretation of the master planning recommendations.

The ALP is an overview of the proposed development of the airport through the year 2015. Although it does not depict the various stages of development leading to the completion of the 20-year plan, additional exhibits and plans in this report show the development stages in detail. The improvements indicated on the ALP and following plans are expected to be financed in part by the City of Cottonwood, the Arizona Department of Transportation-Aeronautics Division, the Federal Airport Improvement Program and through private funding.

Initially, the terminal building and associated parking facilities will be constructed. Also during Stage I, Thangars/Tehados and shrack will be a sion of the fuels will be a sion of an air; I is the a approach approach

In Stage II, additional space will be added to the terminal building, the segmented circle will be relocated, REIL's will be installed on Runway 14, and an NDB facility installed at the airport. Additionally, more apron area and T-hangars/T-shades will be constructed.

Ultimately, the parallel taxiway will be relocated providing the 240 foot separation standard and will include the installation of MITL. The addition of more T-hangars/T-shades will also occur during this stage.

TERMINAL AREA PLAN

3

The Terminal Area Plan, Sheet No. 22, represents a refinement of the selected development configuration and provides a detailed staging plan for construction of the general aviation terminal facilities.

In Stage I, the major project is the construction of a terminal building and parking facility. Stage I also includes the construction of an airport access road, additional T-hangar/T-shades and a aircraft washrack. These facilities are situated as such to provide for future expansion. Stage II development includes terminal building and apron expansion and the construction of additional T-hangars/T-shades.

The Terminal Area Plan outlines the staging of the terminal area development over the 20-year planning period and the levels of accommodation. These staged developments depict an orderly progression for the overall development program and minimize the construction of any temporary or short term use facilities.

PART 77 AIRSPACE PLAN $_{\mathcal{U}}$

The Part 77 Airspace Plan for Cottonwood Municipal Airport, Sheet No. X is based on Federal Aviation Regulation (F.A.R.) Part 77, Objects Affecting Navigable Airspace. The intent of these regulations is to protect the airspace and approaches to each runway

from hazards that could affect the safe and efficient operation of the airport.

The Part 77 Airspace Plan is a graphic depiction of the imaginary surfaces described for various airport geometric planes, such as the runway (primary and transition surfaces), approach (approach surface), and the airport (horizontal and conical surfaces). Design criteria for surface heights, angles and radii on this plan are determined by airport category and runway approach instrumentation. The Airspace Plan for Cottonwood Municipal Airport is based on small airplane nonprecision approaches to both runway ends. These drawings will permit the City Cottonwood to readily determine if construction of a proposed structure in the vicinity of the airport would penetrate any of the protected airspace surfaces.

The obstructions recorded at Cottonwood Municipal Airport are indicated on Sheet No. 3 Those obstructions that pertain to the runway protection zones and approach zones are explained in greater detail on the drawings that follow. appropriate Obstructions to the other airspace surfaces are described briefly below.

PRIMARY SURFACE OBSTRUCTIONS

The *primary* surface for the ultimate runway at Cottonwood Municipal Airport is 500 feet in width, extends 200 feet beyond each runway end and is centered on the runway. There are two obstructions to the primary surface at Cottonwood Municipal of the runway; and a airport security fence, with one portion least. Airport: Airpark Road, located 225 feet east of the runway, and the other along the east side of the runway between the runway and Airpark Road. All obstructions within

the primary surface are requested to be evaluated in a FAA Aeronautical Study to determine any hazards to navigable airspace.

TRANSITION SURFACE OBSTRUCTIONS

y surface is an join two surfaces ırface has a slope rimary surface to ontal imaginary buildings within __ed 270 feet east

of Runway 14-32. It is requested that an FAA Aeronautical Study be preformed to determine any hazards to navigable airspace.

HORIZONTAL SURFACE OBSTRUCTIONS

The horizontal surface is established at 150 feet above the highest airport elevation. The horizontal surface has a radius of 5,000 feet from the ends of the runways. tangent line connects both arcs, ultimately describing the surface exhibited in Sheet No.>3(.

Based on the ultimate airport design, the obstructions to the horizontal surface are associated with rising terrain to the west of the airport. It is recommended that an FAA Aeronautical Study be preformed to determine if there are any hazards to navigable airspace. Each obstruction should be indicated in all aviation publications pertaining to the airport and lighted whenever possible.

CONICAL SURFACE OBSTRUCTIONS

The conical surface for Cottonwood Municipal Airport is 4,000 feet in length

and slopes away from the horizontal surface ar a 20 to 1 slope to a height of 350 feet above the established airport elevation.

Based on the ultimate airport design, the obstructions to the imaginary conical surface are associated with rising terrain west of the airport. It is recommended that an FAA Aeronautical Study be preformed to determine if there are any hazards to navigable airspace. Each obstruction should be indicated in all aviation publications pertaining to the airport and lighted whenever possible.

APPROACH ZONES PLAN

The Approach Zone Plan. Sheet No. 1, is a profile representation of the approach surfaces off each end of the runway. The plan depicts the physical features near each runway's extended centerline, including significant topographic changes, roadways, levees and railroads. The dimensions and angles of the approach surfaces are prescribed in Part 77 and depend upon the runway instrumentation and the type of aircraft served.

The approach slopes for the existing visual approaches to Runway 14-32 are 20 to 1, as well as the future non-precision approaches. These was one obstruction identified within the approach surface for Runway 14. Mingus Avenue, located north of the approach end of Runway 14, is required to provide 15 foot of height clearance, however, only 14 feet is provided. It is recommended that an FAA Aeronautical Study be preformed to determine if there are any hazards to navigable airspace.

RUNWAY PROTECTION ZONES PLAN

The Runway Protection Zones Plan, Sheet No. Consists of a large scale plan and profile view of the inner portions of the approach surfaces. This plan is designed to facilitate identification of roadways, levees, utility lines, structures and other possible obstructions that may lie within the confined of these safety areas at the ends of each runway.

The runway protection zone dimensions are a function of the size of the aircraft and the runway instrumentation. The runway protection zone for Runway 14-32 will be sized for small aircraft (12,500 pounds or less) under non-precision instrument operations (NDB procedures). Although RPZ's would generally be kept graded and level, the Runway 14 RPZ at Cottonwood Municipal Airport has Mingus Avenue and a runoff drainage wash located within its boundary.

LAND USE/NOISE PLAN

The objective of the Land Use/Noise Plan, Sheet No. 3, is to coordinate land uses both on the airport property and in surrounding areas, so that land uses are compatible and able to function without major constraints or annoyance. The Land Use/Noise Plan depicts the recommended land use proposed in the vicinity of Cottonwood Municipal Airport, both on and off airport property. The major objective of this plan is to protect and secure this valuable community asset, and the investment of community, state, and federal dollars.

The boundaries of the Land Use/Noise Plan are defined by a somewhat subjective area illustrated on Sheet No. 5 as the Airport Influence Area. This area is normally adjusted to follow natural landscape features, survey features and/or political boundaries. In the case of Cottonwood Municipal Airport, the boundaries have been aligned to the approximate size of the traffic patterns that could be flown in the vicinity of the airport. The Airport Influence Area as depicted, unconstrained and includes the land most likely to be affected by the majority of the airport operations. The Airport Influence Area includes the noise impact area anticipated for the year 2015, as well as the potential traffic pattern area.

EXISTING LAND USE

The predominate land uses existing in the area of Cottonwood Municipal Airport are vacant or commercial/industrial. Prescott National Forest borders the airport property to the west and Mingus Industrial Park borders to the east. Three existing residential land use in the proximity of the airport are a mobile home park located on the west side of State Route 89A, onequarter mile east of the airport, a residential subdivision, one-half mile south of the small, development airport, and a mile northone-half approximately northwest of the airport.

PLANNED LAND USE

Jurisdiction over land use planning on the airport site and the vicinity is the presently the responsibility of the City of Cottonwood. An examination of the current zoning ordinance revealed that residential areas are located in the vicinity

of the airport. This land use plan recommends commercial, industrial, or open space in the areas immediately surrounding the airport. Each of these land uses are considered compatible with the existing and future airport.

NOISE PLAN

In developing the Land Use/Noise Plan, three primary compatibility factors were analyzed and related to the Cottonwood Municipal Airport environs. Airport hazards are the first factors. Airport hazards can interfere with the landing, takeoff, and flight of aircraft. The criteria for airport hazards were defined and illustrated in the Part 77 Airspace Plan/Approach Zone Plan and Runway Protection Zones Plan.

The second major compatibility factor is aircraft noise and its potential impact on off-airport land use. Noise levels anticipated by future aircraft operations for the year 2015 have been determined through the use of the Integrated Noise Model (INM). This is a computer model which predicts noise exposure levels generated by aircraft operations over a 24-hour period. In general, the FAA recommends that residential and other noise sensitive land uses not be constructed within the 65 Ldn contour area.

The noise contours generated for Cottonwood Municipal Airport are depicted on the Land Use/Noise Plan, Sheet No. 5. Based on the level and type of aviation activity anticipated throughout the 20-year planning period and the INM methodology, the 65 Ldn noise contour generated does not extend beyond the airport property. Land use categories considered compatible with aviation operations are recommended for these areas.

The third factor relates to other land use sensitivities outside the 65 Ldn noise contour. Although the planning guidelines formulated by the FAA are based upon noise impacts, experience has shown that residential land uses in the proximity of airports (particularly within the approaches to an airport) often produce negative reactions from people located in these areas. This adverse reaction is due less to the noise impact and more to the aircraft overflight. It was for this reason that the Airport Influence Area was designed for Cottonwood Municipal Airport.

Residential land uses, for example, are often sensitive to noise or aircraft overflight since those activities associated with residential uses (relaxation, sleep, and speech) can be adversely impacted be noise events. Similarly, schools, libraries, and other public buildings normally require an interior noise environment suitable for uninterrupted speech communication and are also considered noise-sensitive. When circumstances permit, these land uses should not be planned in areas of airport traffic patterns and approaches to runways, even though the noise level is not considered significant.

In contrast, agricultural, industrial, and commercial land uses can adequately function under higher noise exposure levels and, thus, are considered a more compatible type of development for these areas.

ON-AIRPORT LAND USE

The purpose of the on-airport land use plan is to establish uses of the airport property in a way consistent with the distinct operations of the airport facility. On-airport land use planning is important to orderly development and efficient use of available

space. On-airport land use planning is also necessary to minimize the potential for future incompatible land uses.

The on-airport land use is depicted on the Land Use/Noise Plan. Two types of land uses are identified on the Land Use/Noise Plan for on-airport uses: aviation related and commercial/industrial.

The aviation related area is the most common land use on airports. This area includes the airfield operations area and other aviation support facilities. The airport operations area includes the runway, taxiway, safety areas, approach zones, etc. The aviation support area includes facilities such as the terminal building, FBO facilities, tiedowns, hangars, etc.

The commercial/industrial land use category preserves land for the development of businesses that are compatible with the operations of the airport. This land use designation is normally applied at airports with a considerable amount of property, property in excess of that needed for aviation related development.

The on-airport land use plan is designed to provide basic guidance for the City of Cottonwood in making decisions related to development on Cottonwood Municipal Airport. Following the general recommendations of the plan, the airport can maintain an excellent relationship between the users and the community.

OFF-AIRPORT LAND USE

The off-airport land use depicted in Sheet No. 5, is designated the Airport Influence Area. As previously stated, this area is influenced by aircraft operations and will be subject to aircraft overflights. The existing land uses adjacent to the airport

are, for the most part, vacant or industrial. However, areas of residential development is located south, east, and north of the airport property.

Land uses to the north are presently compatible with airport operations, except for the small area of low density residential. It is recommended that this area be rezoned to accommodate commercial or industrial land uses.

To the west of the airport, a parcel has been zoned for medium density residential, which currently accommodates a mobile home park. This parcel should be considered to be rezoned as either commercial or industrial in the future. These land uses would be more compatible to future airport operations.

The land uses to the south of the airport include open space immediately adjacent to the airport property, and low density residential. Because of the amount of residential development in this area, it would appear that this land use will remain in this area throughout the planning period without any significant changes. However, it is recommended that this area remain as low density residential, with the potential of changing to commercial or industrial at some date beyond the planning period.

The area to the east, is zoned for industrial with a portion available for low density residential. Although the residential land use close to an airport is not recommended, this area would most likely not have aircraft overflights due to the airport traffic pattern being on the east side of the airport. It would not appear that significant noise impacts would occur in this area.

It is important to emphasize that noise contours produced by an airport are guides to proper land use planning. While it is sometimes impractical to change pre-existing land uses that are considered incompatible with airport operations, it is desirable to protect these lands within the influence area from further incompatible land use development.

AIRPORT PROPERTY MAP

1

The Airport Property Map, Sheet No. 6, depicts the property that was acquired in order to construct Cottonwood Municipal Airport. All of the documents recording the land acquisitions are described as will as the type of instrument (warranty deed, quit claim deed, etc.) used to acquire the property.

SUMMARY

The Airport Plan Set is designed to provide basic guidance for the City of Cottonwood in making decisions relative to future development at Cottonwood Municipal Airport. The plan set provides for development to satisfy both the short term and long range needs. Flexibility will be a key to future development as demands are not likely to occur exactly as forecast.

It will be incumbent upon the City to ensure these plans remain current and the appropriate authorities are advised whenever significant changes in airport development occur that could affect the area land use planning.



COTTONWOOD

MUNICIPAL AIRPORT

AIRPORT LAYOUT PLANS

INDEX OF DRAWINGS

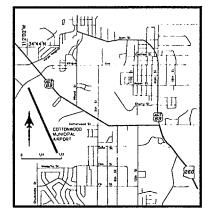
- Sheet 1. AIRPORT DATA SHEET
- Sheet 2. AIRPORT LAYOUT PLAN
- Sheet 3. TERMINAL AREA PLAN
- Sheet 4. PART 77 AIRSPACE PLAN
- Sheet 5. APPROACH ZONES PROFILES / RUNWAY PROTECTION ZONES PLANS AND PROFILES
- Sheet 6. LAND USE / NOISE PLAN
- Sheet 7. PROPERTY MAP



AIRPORT DATA							
COTTONWOOD MUNICIPAL AIRPORT (P52)							
CITY: COTTONWOOD, ARIZONA	COUNTY	: YAVAPAI, ARIZONA					
RANGE: 3 EAST TOWNSHIP: 15, 16 N	CIVIL T	OWNSHIP: N/A					
		EXISTING	ULTIMATE				
AIRPORT SERVICE LEVEL		GENERAL AVIATION	SAME				
AIRPORT REFERENCE CODE		B-1	B-II				
AIRPORT ELEVATION (MSL)		3550	SAME				
MEAN MAXIMUM TEMPERATURE OF HOTTEST	MONTH	98.4F (JULY)	SAME				
AIRPORT REFERENCE POINT	Latitude	34'43'48.07688'N	SAME				
(ARP) COORDINATES (NAD 83)	Longitude	112'02'06.56751" W	SAME				
AIRPORT and TERMINAL NAVIGATIONAL AIDS		ROTATING BEACON	NDB				
			ROTATING BEACON				

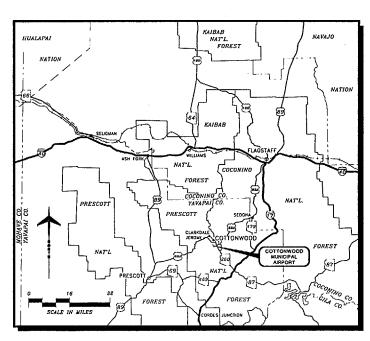
RUNWAY DATA	RUNWAY 14-32			
, HONWAT DATA	EXISTING	ULTIMATE		
AIRPORT REFERENCE CODE	B-I	B-II		
RUNWAY AZIMUTH	24.417	SAME		
RUNWAY BEARING	N24'25'00" W	SAME		
RUNWAY DIMENSIONS	4250' X 75'	SAME		
RUNWAY INSTRUMENTATION	VISUAL/VISUAL	NONPREC./NONPREC		
RUNWAY APPROACH SURFACES	20:1/20:1	SAME		
RUNWAY THRESHOLD DISPLACEMENT	NONE	SAME		
RUNWAY STOPWAY	300' X 75'	SAME		
RUNWAY SAFETY AREA	4850' X 150'	SAME		
RUNWAY OBSTACLE FREE ZONE	4650' X 250'	SAME		
RUNWAY OBJECT FREE AREA	5100' X 400'	SAME		
TAKEOFF RUN AVAILABLE (TORA)	4250'/4250'	SAME		
TAKEOFF DISTANCE AVAILABLE (TODA)	4250'/4250'	SAME		
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	4250'/4250'	SAME		
LANDING DISTANCE AVAILABLE (LDA)	4250'/4250'	SAME		
PAVEMENT MATERIAL	ASPHALT	SAME		
PAVEMENT SURFACE TREATMENT	NONE	SAME		
PAVEMENT STRENGTH (in thousand lbs.)	12.5(S)	SAME		
RUNWAY EFFECTIVE GRADIENT (in %)	0.97%	SAME		
RUNWAY MARKING	VISUAL	NONPRECISION		
RUNWAY LIGHTING	MIRL	SAME		
RUNWAY APPROACH LIGHTING	PAPI-2, REIL (32)	SAME. REIL (14)		
TAXIWAY LIGHTING	NONE	MITL		
TAXIWAY MARKING	CENTERLINE	SAME		
NAVICATIONAL AIDS	PAP1-2	SAME		
	REIL (32)	REILS (14-32)		
		NDB		
	1			

RUNWAY END COORDINATES (NA	D 83)	EXISTING	ULTIMATE
DIRIUMAN	Latitude	34'44'07.03854" N	SAME
RUNWAY 14	Longitude	112'02'15.16092" W	SAME
RUNWAY 32	Latitude	34'43'28.45222' N	SAME
HUNWAT 32	Longitude	11Z01*54.44197" W	SAME

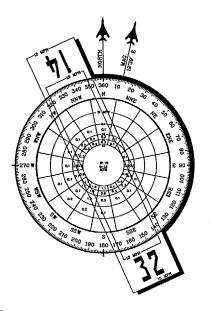


VICINITY	MAP

DEVIATIONS FROM FAA AIRPORT DESIGN STANDARDS								
DEVIATION DESCRIPTION FFFECTED DESIGN STANDARD STANDARD EXISTING PROPOSED DISPOSITION								
INADEQUATE OBJECT FREE AREA-RWY. 14-32 INADEQUATE OBJECT FREE AREA-RWY. 14		250' FROM RUNWAY CL 600' FROM RUNWAY END		REQUEST FAA APPROVAL FOR MODIFICATIONS				
INADEQUATE OBJECT FREE AREA-RWY. 32 AIRPORT OBSTRUCTIONS	ULTIMATE OBJECT FREE AREA F.A.R. PART 77 CRITERIA	600' FROM RUNWAY END SEE SHEET 4	510' FROM RUNWAY END SEE SHEET 4	TO STANDARDS REQUEST FAA AERONAUTICAL STUDY				
MIRPORT UBSTRUCTIONS	F.A.R. PARI 77 CRITERIA	SEE SHEET 4	SEE SREET 4	REQUEST PAR AERONAUTICAL STUDI				



LOCATION MAP



U.S. Department of Commerce,
National Oceanic and
Atmospheric Administration
DATA STATION:
National Climate Center
Ashville, North Carolina

Ashville, North Carolina SERVATIONS: 80,000 Estimated 1948-1978 Ernest A. Love Field Prescott, Arizona

WIND COVERAGE							
	12 MPH	16 MPH					
Runway 14-32	91 68%	96.38%					



MAGNETIC VARIANCE-1238'E (APRIL 1993) RATE OF CHANGE 2.4' ₩

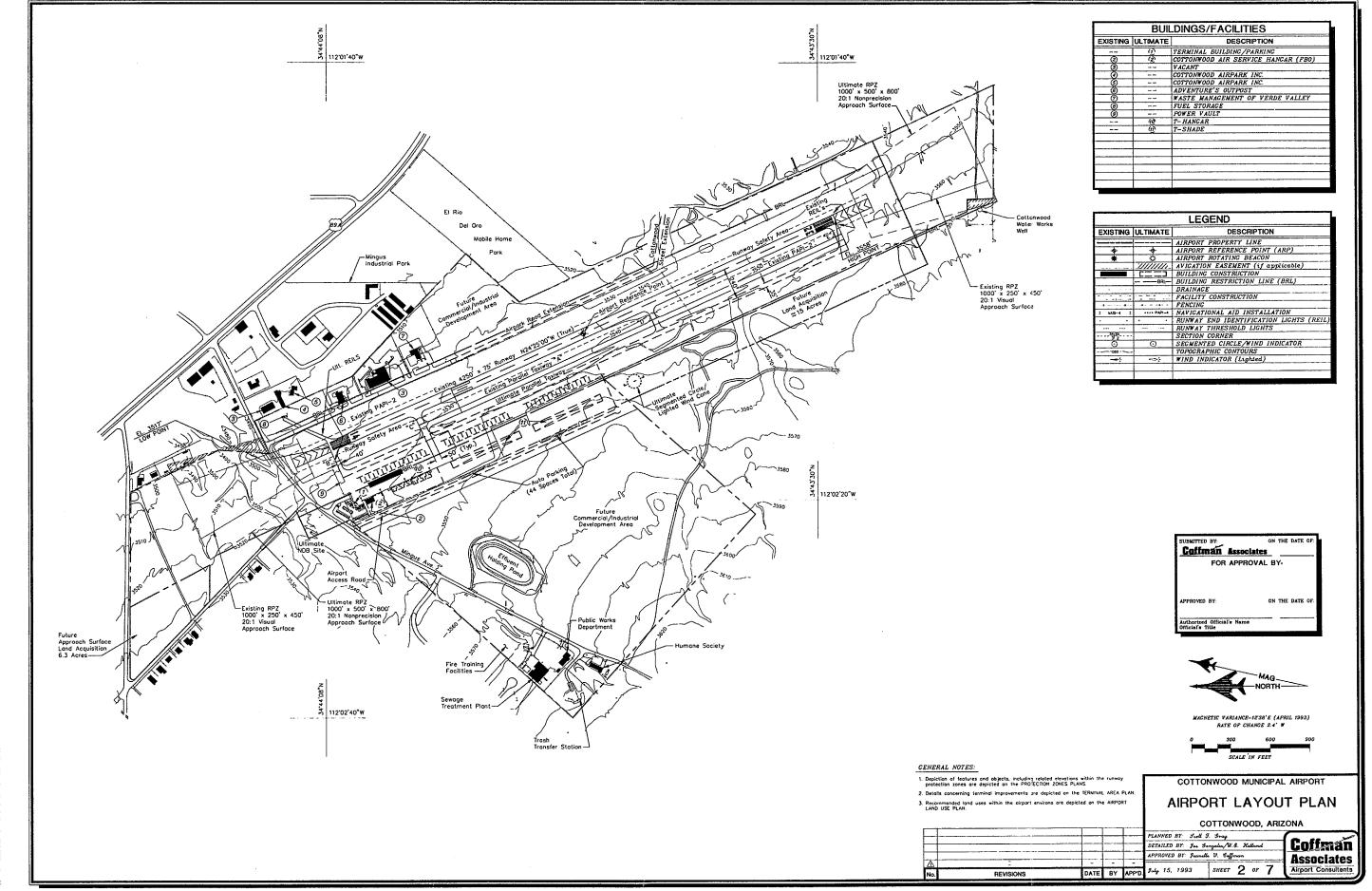
COTTONWOOD MUNICIPAL AIRPORT

AIRPORT DATA SHEET

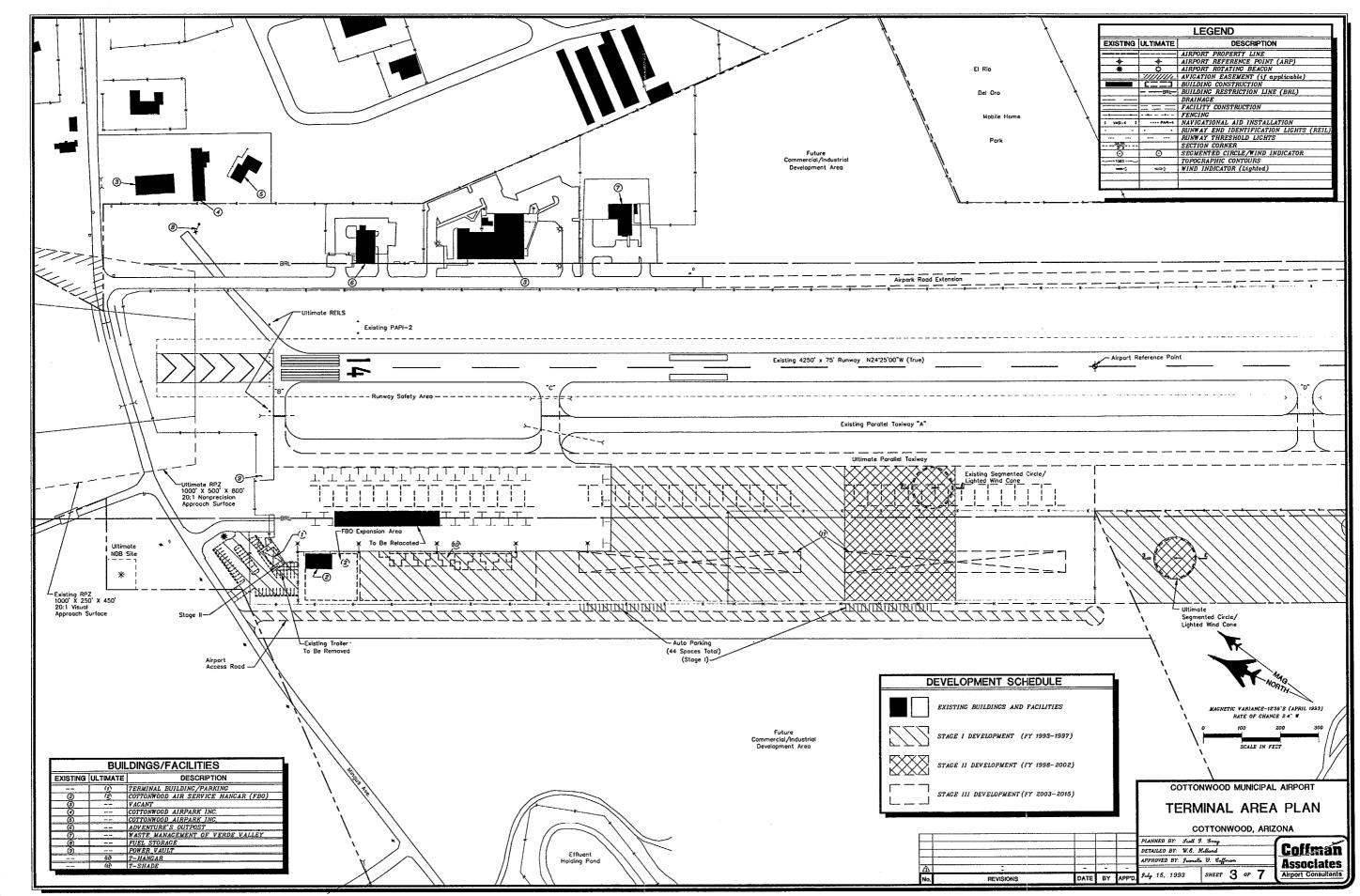
COTTONWOOD, ARIZONA

		,			COTTONWOOD, ARIZONA				ZONA	
					PLANNED BY: South 9	T. Gray				(×
\dashv					DETAILED BY: W &. A	Kelland				Coffmar
					APPROVED BY Jamette	v. Coffee	an.			Associates
△		-	-	-			4		7	
No.	REVISIONS	DATE	BY	APP'D.	July 12, 1993	SHEET	<u> </u>	OF		Airport Consultant

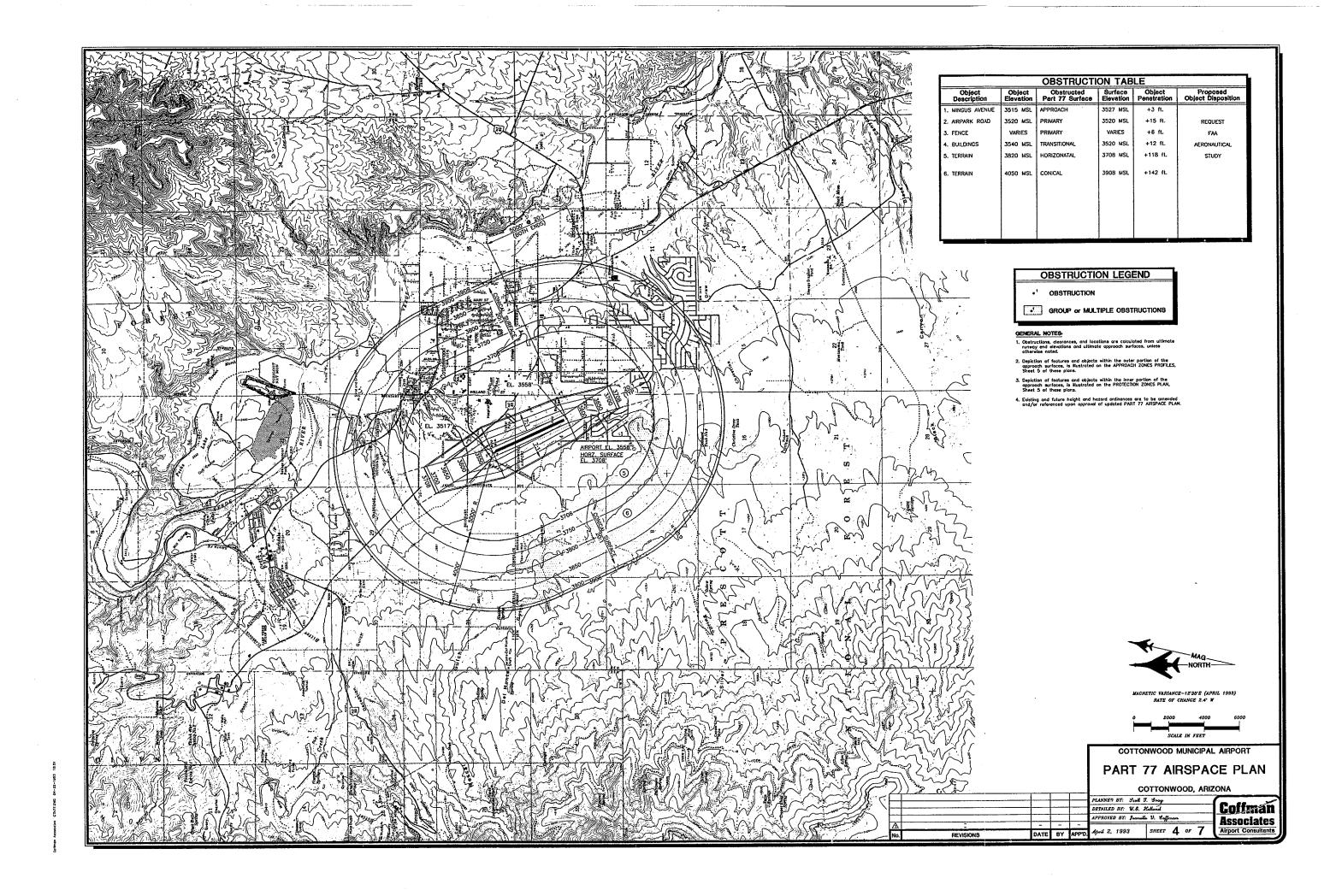
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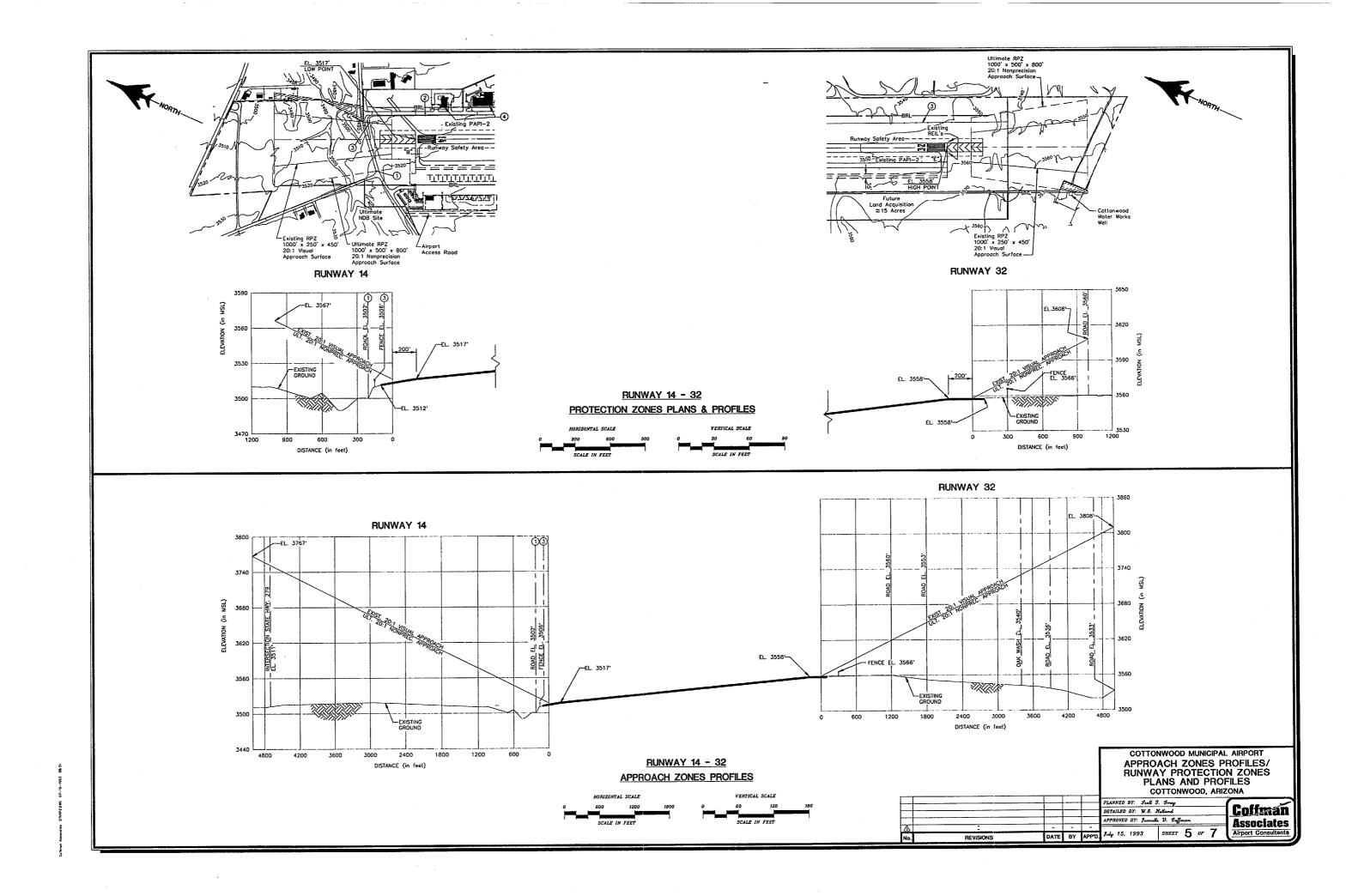


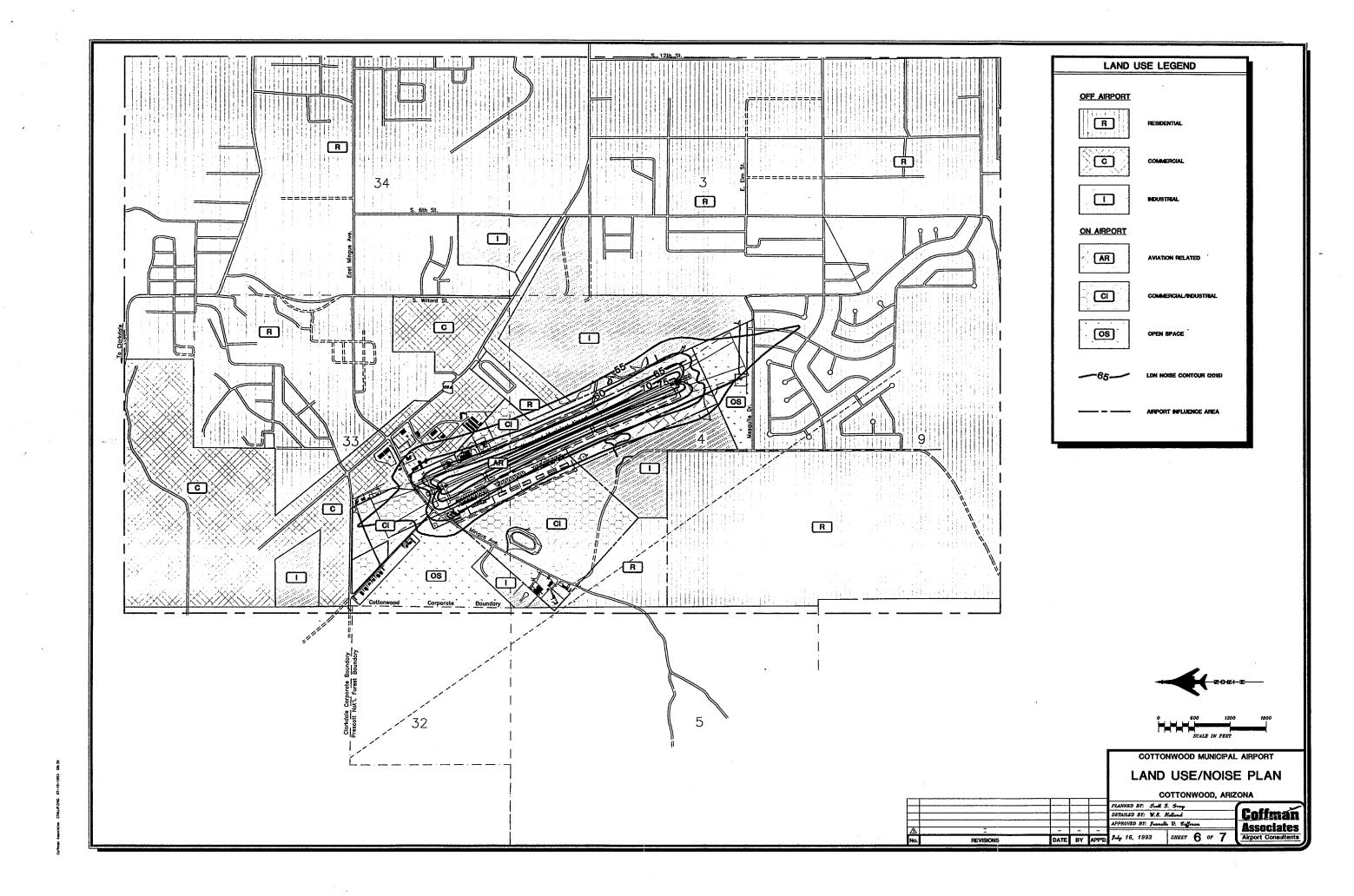
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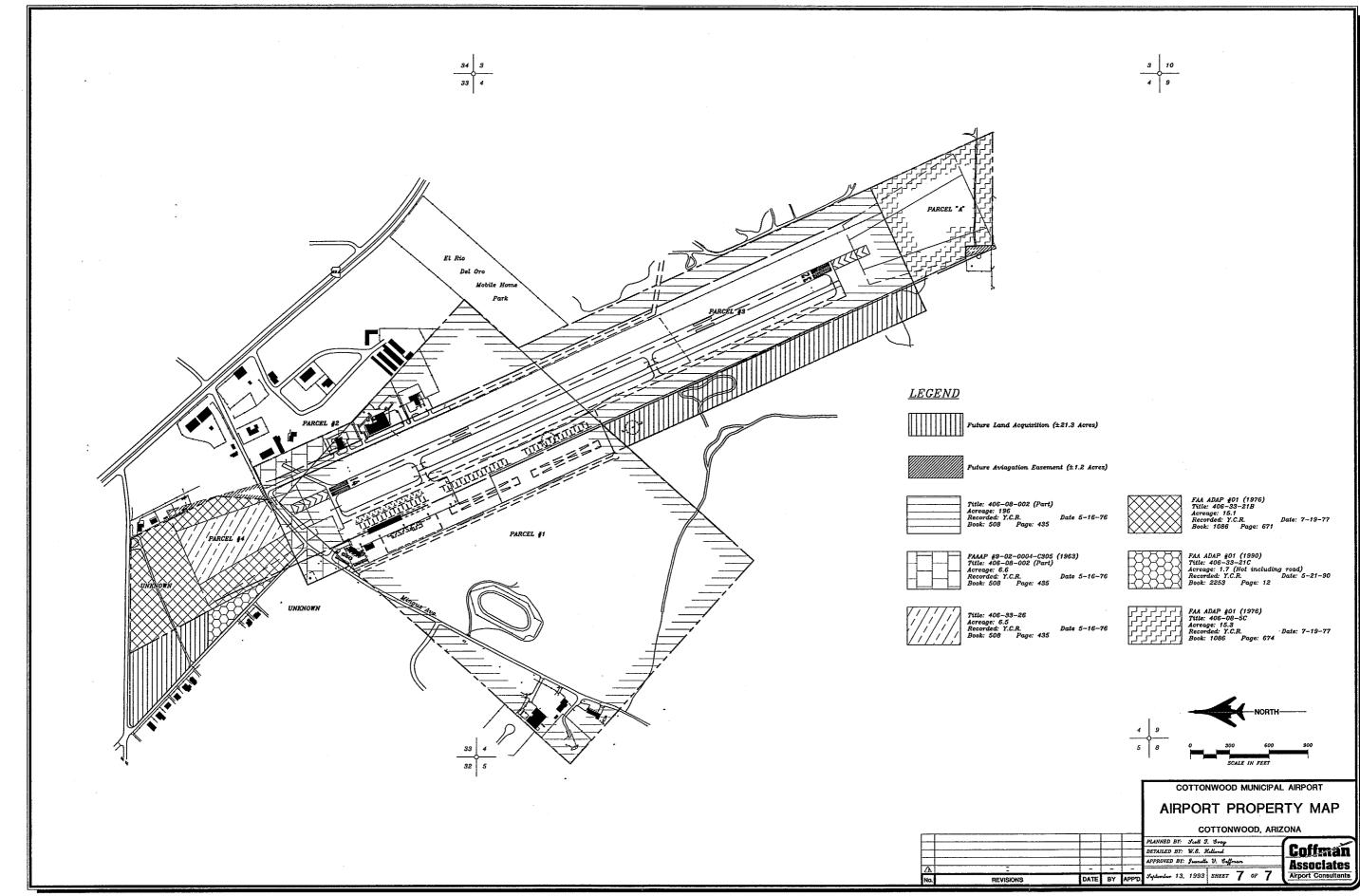


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